

REMARKS

This Amendment is filed in response to the Office Action mailed on October 28, 2008. All objections and rejections are respectfully traversed.

Claims 1-11, 17-34, and 36-41 are currently pending.

Request for Interview

The Applicant respectfully requests a telephonic interview with the Examiner after the Examiner has had an opportunity to consider this Amendment, but before the issuance of the next Office Action. The Applicant may be reached at 617-951-3067.

Specification Objections

At paragraph 3 of the Office Action, the specification was objected to as not providing proper antecedent basis. Specifically, the term “computer readable medium” was objected to. Applicant respectfully notes that the term computer readable medium is stated at the following paragraphs in the specification.

Page 12, lines 18-21 states “It will be apparent to those skilled in the art that other processing and memory means, including various computer readable media, may be used for storing and executing program instructions pertaining to the inventive technique described herein.”

Page 19, lines 25-29 states” In addition, it is expressly contemplated that any of the operations and procedures described herein can be implemented using hardware,

software comprising a computer-readable medium having program instructions executing on a computer, or a combination of hardware and software.”

Accordingly, the specification provides proper antecedent basis for computer readable medium.

Claims Rejections - 35 USC § 102

At paragraphs 4-5 of the Office Action, claims 32-34 were rejected under 35 U.S.C. § 102 as being anticipated by rsync Unix command manual, version 2.4.1., February 2000, hereinafter rsync.

The present invention, as set forth in representative claim 32, comprises:

32. A system for performing a consistency check of a source directory replicated to a destination directory by comparing entries in the source and destination directories, the system comprising:

one or more storage disks configured to store one or more of a group consisting of the source directory and the destination directory;
a process configured to compare entries in the source directory with entries in the destination directory by walking the source and destination directories only once, whereby utilization of storage subsystems associated with the source and destination directories is limited by only walking each of the source and destination directories once, and further configured to report a difference between the source directory and the destination directory, wherein the source directory is located on a source storage system and the destination directory is located on a destination storage system and the source storage system and the destination storage system are separate stand alone storage systems; and

the process is further configured to remove matching entries from a hash table, whereby future look up operations in the hash table are enabled to be performed faster due to a smaller size of the hash table.

By way of background, rsync discloses a remote-update protocol allows rsync to transfer just the differences between two sets of files across the network link, using an efficient checksum-search algorithm described in the technical report that accompanies this package.

Applicant respectfully urges that rsync does not disclose Applicant's claimed novel *the process is further configured to remove matching entries from a hash table, whereby future look up operations in the hash table are enabled to be performed faster due to a smaller size of the hash table.*

There is no disclosure in rsync of a hash table.

Accordingly, Applicant respectfully urges that rsync is legally insufficient to anticipate the present claims under 35 U.S.C. §102 because of the absence of the Applicant's claimed novel *the process is further configured to remove matching entries from a hash table, whereby future look up operations in the hash table are enabled to be performed faster due to a smaller size of the hash table.*

Claims Rejections - 35 USC § 103

At paragraphs 2-3 of the Office Action, claims 1-11 and 17-28 were rejected under 35 U.S.C. § 103 as being unpatentable over Orwant et al., Mastering Algorithms with Perl, hereinafter Orwant, in view of Musser, Rationale for Adding Hash table to the C++ standard template library, hereinafter Musser.

The present invention, as set forth in representative claim 1, comprises in part:

1. A method for comparing a first directory comprising unique elements with a second directory comprising unique elements, comprising:

(a) *for each entry in the first directory, placing the entry in a hash table, wherein the first directory is stored on a source storage system;*

(b) *selecting an entry from the second directory, wherein the second directory is located on a destination storage system and the source storage system and the destination storage system are separate stand alone storage systems;*

(c) looking up the selected entry in the hash table;

(d) removing, in response to locating the selected entry in the hash table, the selected entry from the hash table;

(e) determining if additional second directory entries exist;

(f) looping to step (b) in response to identifying additional second directory entries; and

(g) *reporting a difference between the first directory and the second directory in response to at least one first directory entry remaining in the hash table.*

By way of background, Orwant discloses the intersection between two groups.

Musser discloses restructuring and extension of hash tables for the C++ standard template library.

Applicant respectfully urges that Orwant and Musser, taken alone or in combination, do not teach or disclose *for each entry in the first directory, placing the entry in a hash table, wherein the first directory is stored on a source storage system, selecting an entry from the second directory, wherein the second directory is located on a destination storage system and the source storage system and the destination storage system are separate stand alone storage systems, ... reporting a difference between the first directory and the second directory in response to at least one first directory entry re-*

maintaining in the hash table. Applicant's invention determines the difference between a first directory on a source storage system and a second directory on a destination storage system using a hash table. Then, reporting the differences with the hash table only storing entries for the differences between the first and second directories.

There is no disclosure or suggestion in Orwant and Musser of determining the differences between a first directory and a second directory stored on separate storage systems. Orwant merely discloses an intersection of groups. Musser merely discloses a reconstruction of a hash table. The combination of Orwant and Musser does not disclose finding the differences between two directories on separate storage systems.

Applicant argues that there is no motivation to combine Orwant and Musser. According to *In re Kahn*, "mere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole. 441 F. 3d 977, 988 (CA Fed. 2006). Furthermore, it is "necessary to consider the reality of the circumstances, in other words,...would a person of ordinary skill in the art reasonably expect to look for a solution to the problem facing the inventor." *Id.* Musser merely teaches a reconstructing of a hash table for C++ standard template library. Musser deals with a revision to C++ library for hash tables. Therefore, Applicant, whose skill is determining the difference between two directories stored on separate storage system using a hash table file system reorganization, would not be motivated to look to Musser, a C++ standard template library reconfiguration for a solution to the Applicant's problem. Therefore, it is the Applicant's position that there is no motivation to combine Musser and Orwant be-

cause Musser is just “mere identification in the prior art of...an element” (i.e., hash table).

Applicant respectfully urges that Orwant and Musser is legally insufficient to render Applicant’s claims obvious under 35 U.S.C. § 103(a) because of the absence from Orwant and Musser of Applicant’s claimed novel *for each entry in the first directory, placing the entry in a hash table, wherein the first directory is stored on a source storage system, selecting an entry from the second directory, wherein the second directory is located on a destination storage system and the source storage system and the destination storage system are separate stand alone storage systems, ... reporting a difference between the first directory and the second directory in response to at least one first directory entry remaining in the hash table.*

At paragraphs 8 of the Office Action, claims 35-41 were rejected under 35 U.S.C. § 103 as being unpatentable over rsync, in view of Musser.

The present invention, as set forth in representative claim 36, comprises in part:

36. A system for performing a consistency check of a source directory and a destination directory by comparing entries in the source and destination directories, the system comprising:

- the source directory stored on a source storage system;
- the destination directory stored on a destination storage system,
- wherein the source storage system and the destination storage system are separate stand alone storage systems; and

- a processor configured to select alternating entries from the source and destination directories to be added to a hash table and further adapted to remove matching entries from the hash table, whereby a size of the hash table is limited to a number of dissimilar entries of the*

source and destination directories, and further configured to report a difference between the source directory and the destination directory in response to the number of dissimilar entries being greater than zero.

Applicant respectfully urges that rsync and Musser, taken alone or in combination, do not suggest or teach Applicant's claimed novel *a processor configured to select alternating entries from the source and destination directories to be added to a hash table and further adapted to remove matching entries from the hash table, whereby a size of the hash table is limited to a number of dissimilar entries of the source and destination directories, and further configured to report a difference between the source directory and the destination directory in response to the number of dissimilar entries being greater than zero.* In further detail, Applicant's invention is determining the difference between a first directory located on a source storage system and a second directory located on a destination storage system using hash tables. The source storage system and the destination storage system are separate storage systems. Applicant's invention is a system for determining the differences between two directories to only send a limited amount of data to the source storage system.

Applicant argues that there is no motivation to combine rsync and Musser. According to *In re Kahn*, "mere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole. 441 F. 3d 977, 988 (CA Fed. 2006). Furthermore, it is "necessary to consider the reality of the circumstances, in other words,...would a person of ordinary skill in the art reasonably expect to look for a solution to the problem facing the inventor." *Id.* Musser merely teaches a re-

constructing of a hash table for C++ standard template library. Musser deals with a revision to C++ library for hash tables. Therefore, Applicant, whose skill is determining the difference between two directories stored on separate storage system using a hash table file system reorganization, would not be motivated to look to Musser, a C++ standard template library reconfiguration for a solution to the Applicant's problem. Therefore, it is the Applicant's position that there is no motivation to combine rsync and Musser because Musser is just "mere identification in the prior art of...an element" (i.e., hash table).

Accordingly, Applicant respectfully urges that rsync and Musser, taken alone or in combination, are legally insufficient to make obvious the presently claimed invention under 35 U.S.C. § 103 because of the absence of the Applicant's claimed novel *a processor configured to select alternating entries from the source and destination directories to be added to a hash table and further adapted to remove matching entries from the hash table, whereby a size of the hash table is limited to a number of dissimilar entries of the source and destination directories, and further configured to report a difference between the source directory and the destination directory in response to the number of dissimilar entries being greater than zero.*

At paragraphs 8 of the Office Action, claims 12-16 and 29-31 were rejected under 35 U.S.C. § 103 as being unpatentable over Orwant, in view of Musser, and in further view of rsync.

Applicant respectfully notes that claims 12-16 and 29-31 are dependent claims that depend from independent claims believed to be in condition for allowance. Accordingly, claims 4, 7-8, 10-16, 18, and 27-31 are believed to be in condition for allowance.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable base claims and likewise in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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